

IN THE CLAIMS:

1. A method of transferring information between devices upon connection and reconnection comprising:

providing a first device having a first identifier;

providing a second device having a second identifier;

the first device sending the first identifier to the second device during a first connection;

the second device sending the second identifier to the first device during the first connection;

the first device storing the second identifier and the second device storing the first identifier;

when the first and second devices are disconnected and reconnected, the first device sending the first identifier to the second device and the second device sending the second identifier to the first device during the first reconnection, and each device comparing the received identifier against the stored identifier and sending additional information to the other device depending upon the result of the comparison.

2. The method of claim 1 wherein the step of sending an identifier to the other device includes sending a value that is based on, but not equivalent to, the identifier.

3. The method of claim 2 wherein the value sent by the first device is based on the number of times the first device has connected to the second device.

4. The method of claim 3 wherein the difference between the different values sent each time is pseudo-random.

5. The method of claim 3 wherein the value sent by the first device is determined based on at least one mathematical operation, and at least one of the purposes of the mathematical operation is to make it difficult to predict the next value to be sent.

6. The method of claim 2 wherein the value sent by the first device is based on one or mathematical operations using at least the identifier, the number of times the first device has connected to the second device, and a third number as operands.

7. The method of claim 6 wherein the third number is a prime number.

8. A method of authenticating a device comprising:  
receiving a first value from the device, the first value being different from an identifier associated with the device;

determining the identifier from the value, the value being a function of the identifier and the number of times the device has been authenticated;

comparing the identifier determined from the value against a pre-stored identifier;

authenticating the device based on the result of the comparison.

9. The method of claim 8 further including:  
receiving a second value from the device after the step of authenticating, this value being different from the first value and different from the identifier;

determining the identifier from the second value, the second value being a function of the identifier and the number of times the device has been authenticated;

comparing the identifier determined from the second value against a pre-stored identifier;

authenticating the device again based on the result of the comparison.

10. The method of claim 9 wherein the pre-stored value is stored by:

receiving an initial value from the device, the initial value being different from the identifier, the first value and the second value;

determining the identifier from the initial value, the initial value being a function of the identifier;

storing the initial value.

11. The method of claim 10 wherein the difference between the initial value and the second value is different from the difference between first value and the second value.

12. The method of claim 8 further including sending information to the device dependant upon whether the device is authenticated.

13. The method of claim 8 further using information from the device dependant upon whether the device is authenticated.

14. The method of claim 13 further including taking an action dependant upon whether the device is authenticated.

15. The method of claim 8 wherein the function is a pseudo-random generator using the number of times the device have been authenticated as a seed.

16. The method of claim 8 wherein the function is intended to make it difficult to predict the next value to be received.

17. A system which takes an action in response to a signal from a device, the system comprising:

an increment counter associated with a value representing the number of times the system has taken an action in response to a signal from the device;

a pseudo-random number generator using the increment counter value as a seed;

memory for storing a value identifying the device;

instructions including using the value of the increment counter to extract the value identifying the device from a value transmitted from the device, comparing the identification value with the value stored in memory, and taking the action dependant upon the results of the comparison.

18. The system of claim 17 wherein the device includes:

an increment counter;

a random number generator using the increment counter of the device value as a seed; and

instructions for using the value of the increment counter of the device to create a value for transmission.

19. The system of claim 18 wherein the system is a toy and the device defines functions to be performed by the toy.

20. The system of claim 19 wherein the toy is a doll.

21. The system of claim 17 wherein if the increment counter indicates that the system has not yet taken an action in response to a signal from the device, then the system stores the identification value in memory.

22. The system of claim 21 wherein the system is a lock and the action taken is locking or unlocking.

23. A method of a destination being authenticated by a source comprising the destination:

maintaining a seed value which is equivalent to a seed value maintained at the source, the seed changing over time,

generating a value based on the seed and based on a value identifying the destination whereby the generated value is different from the seed and the destination's identification value;

transmitting the generated value to the source; and

being authenticated to receive information from the source or send information which will be used by the source, the authentication being dependant upon the source using the seed to extract the destination's identification value and comparing the destination's identification value with the value of a destination known by the source to be authentic.

24. The method of claim 23 wherein the seed is based on the number of times the destination has sent the generated value.

25. The method of claim 24 wherein the seed is based on the number of times the destination has been authenticated.

26. The method of claim 25 wherein the generated number is also based on the last generated value sent from the destination to the source.

27. The method of claim 23 further comprising the source:

generating a value different from the seed but based on the seed;

transmitting the generated value to the destination.

28. The method of claim 27 wherein the value generated by the destination is also based on the last generated value transmitted from the source to the destination.

29. The method of claim 28 wherein the value generated by the source is also based on the last generated value transmitted from the destination to the source.

30. The method of claim 23 further comprising the source:

generating a value based on the seed and based on a value identifying the source whereby the generated value is different from the seed and the source's identification value;

transmitting the generated value to the source; and

being authenticated to receive information from the destination or send information which will be used by the destination, the authentication being dependant upon the destination using the seed to extract the source's identification value and comparing the source's identification value with the value of a source known by the destination to be authentic.

31. The method of claim 30 wherein the destination is not authenticated if the destination has already been authenticated a predetermined number of times.

32. A system of devices comprising:

a first device having an identifier and pseudo-random number generator;

a second device; and

whereby upon the connection of the first device to the second device, the first device sends a value based on the output of the pseudo-random number generator and identifier, the second device receives the value, compares the received value with a prestored value, and depending on the results of the comparison, sends or receives information to or from the first device.

33. The system of claim 32 wherein the second device further comprises a checksum algorithm providing a value indicative of whether the prestored value was erased.